Integration of WRDA Restoration And CERCLA Remedial Processes at Urban Waterway Superfund Sites

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INTRODUCTION

Background

EPA's Contaminated Sediment Management Strategy indicated that more than ten Federal statutes provide authority to EPA to address contaminated sediment. EPA cites these multiple authorities as one of the reasons for fragmented, and in some cases duplicative, efforts to effectively manage contaminated sediment. Often it has been difficult for EPA programs to simply agree even upon the fundamental question of whether sediment at a particular site poses ecological or human health risks.

This, in combination with the complexities of multiple contaminants, multiple pathways, multiple PRPs, orphan shares, and on-going pollution has further limited the effectiveness of urban waterway cleanup under Superfund. Experiences at site after site over the past two decades have demonstrated the difficulties of completing enforcement based sediment cleanup at urban waterways. The CERCLA process at these sites often results in a significantly disproportionate amount of time and resources being spent on attempting to establishing a defensible definition of damage, identifying viable responsible parties, assigning liability for cleanup, and executing a consent decree for cleanup, as compared to the effort actually spent for remedial action.

There continues to be a cloud of uncertainty hanging over contaminated sediment sites being addressed under CERCLA. Consequently, elected officials, regulators, and industry continue to look for other ways to implement cleanup of the Nation's many contaminated urban waterways.

WRDA Concept

One alternative currently under consideration for cleanup of urban waterways[3] is application of the environmental restoration authorities of the Water Resources Development Act (WRDA). The Water Resources Development Act of 1986 (PL 99-662) made numerous changes in the way water resources projects are studied, evaluated, cost shared and funded. PL 99-662 established a framework for a cost-sharing

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[3] Examples of urban river sites that are currently in different stages of investigating WRDA environmental restoration authorities at Superfund sites are the Ashtabula River in Ohio (adjacent to Superfund site), the lower Passaic River in New Jersey, and the lower Willamette River in Oregon.

partnership between the federal government and non-Federal interests that provides the local sponsor a role in defining and implementing water resource projects that reflect both the Nation's and the sponsor's interests. Many new WRDA environmental restoration authorities offer the potential for faster and more extensive restoration of urban waterways than can be achieved through Superfund alone.

The potential benefits of utilizing the voluntary WRDA process at Superfund sediment sites may be significant when compared to the existing track record of CERCLA-based solution attempts. WRDA provides the potential to leverage financial contributions of Superfund potential responsible parties (PRPs) into projects of far greater scope and magnitude than could be accomplished by Superfund alone, and at the same time expedite cleanups. Under WRDA, participants focus their energies on identifying, designing, and implementing actions that provide benefits to the ecosystem, as opposed to CERCLA processes that typically involve spending considerable resources proving damages and assigning liabilities for cleanup.

If approached correctly, there is considerable potential to implement WRDA projects in ways that clean up and restore urban waterways while at the same time resolving PRP CERCLA liabilities. One instrument under consideration for the coordination of WRDA and CERCLA processes is a consent decree between the PRPs and EPA that requires PRPs to fund local shares of WRDA ecosystem restorations of urban waterways. WRDA-based projects can provide remediation of sediments to remove threats to human health and the environment and also provide for significant habitat and ecosystem restoration of urban waterways. The consent decree could in turn provide participating PRPs relief from CERCLA liability at involved Superfund sites.

While such an approach has yet to be fully applied, the disappointing track record of completing cleanup and restoration of urban waterways under CERCLA provides a strong incentive to examine and test this new paradigm.

Objective

The objective of this paper is to provide information for interested parties to use in their evaluation WRDA as a potential authority for completion of sediment remediation and restoration at Superfund sites. The paper identifies a general framework of WRDA authorities followed by a discussion of WRDA and the WRDA project development process.

An outline of the WRDA-based approach is summarized in Table 1 (WRDA Concept for Superfund Urban Waterway Sites) and Figure 1 (Integration of WRDA Restoration and CERCLA Remedial Processes at Urban Waterway Superfund Sites). The CERCLA and WRDA processes are compared in Table 2.

REGULATORY SETTING

This section provides a short summary of the primary Federal environmental authorities that may apply to the cleanup of urban waterways.

CERCLA (Superfund)

The U.S. Environmental Protection Agency (EPA) has the authority to designate urban harbors and rivers as Superfund sites on the National Priorities List (NPL), under authorities granted to EPA by the Compressive Environmental Response, Compensation and Liability Act (CERCLA).

Under CERCLA, EPA's primary responsibility is to undertake remedial actions that assure adequate protection of human health and the environment. Selected remedial actions for NPL sites must comply with applicable or relevant and appropriate requirements (ARARs), which are environmental standards established under federal, state, or tribal environmental laws, and must be cost-effective and permanent to the maximum extent practicable.

Once a site is listed, it is normal for groups of PRPs to form associations to negotiate administrative orders on consent (AOCs) with EPA to conduct remedial investigations (RIs) and feasibility studies (FSs) for the sites. The RI/FS is used to prepare records of decision (RODs) that set forth cleanup requirements at individual sites. It is typically after RODs are issued that PRPs enter into consent decrees (CDs) with EPA to complete remedial designs (RDs) and remedial actions (RAs) at the sites, leading to removal of the sites from the NPL.

Natural Resource Damage Assessments

CERCLA, the Clean Water Act and the Oil Pollution Act also grant authority for federal and state agencies and tribal governments to act as Natural Resources Trustees (Trustees) to conduct Natural Resource Damage Assessments (NRDAs) at Superfund sites. The purpose of the NRDA authorities is to determine the extent of injuries to natural resources such as fish, wildlife, sediment, and water quality as a result of the release of hazardous substances. Trustees can recover damages from parties who have caused the injuries, as well as resources for conducting restoration activities.

Endangered Species Act

The Endangered Species Act (ESA) addresses the protection of endangered and threatened species. The presence of threatened, proposed, and candidate species (anadromous salmonids on the West coast, for example) are directly influencing sediment actions in some urban waterways. Section 7 of the ESA imposes substantive and procedural obligations on Federal agencies (such as EPA and the Corps) to utilize their authorities to further the purposes of the ESA. Section 7(a)(2) of the ESA requires Federal agencies to insure that any actions (such as Superfund cleanups or WRDA

projects) that are authorized, funded, or carried out by the agency are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of habitat that has been designated as critical for the species. Section 7(a)(4) of the ESA also requires that Federal agencies confer with the Services on any agency actions that are likely to jeopardize the continued existence of any species proposed for listing, or result in the destruction or adverse modification of proposed critical habitat.

Corps Dredged Materials Management Plans

The U.S. Army Corps of Engineers (Corps) is involved at many of the urban harbors and rivers throughout the United States as the Federal agency responsible for maintaining the federally authorized navigation channels. One of the primary maintenance activities of the Corps is regular dredging and disposal of sediment to maintain the authorized navigable depth of the channel[4]. Consequently, the Corps completes dredged material management studies (DMMS) for these urban waterways, which leads to dredged material management plans (DMMP). While the DMMS/DMMP may be focused on only maintenance dredging of navigation channels, evaluations of dredging methods and screening of disposal sites can provide valuable information for evaluations of ecosystem restoration activities under other authorities.

WRDA Environmental Restoration Authorities

WRDA bills in the last decade have authorized numerous new environmental restoration authorities. Those authorities include environmental dredging (Section 312 WRDA 90, amended by Section 205 WRDA 96 and Section 224 WRDA 99), beneficial uses of dredged material (Section 204 WRDA 92, amended by Section 207 WRDA 96), aquatic ecosystem restoration (Section 206 WRDA 96), ecosystem restoration and protection (WRDA 86, 90, 92, 96), and dredged material disposal partnerships (Section 217 WRDA 96).

Because WRDA programs are cooperative initiatives between the local community and the federal government, they have the potential to be implemented faster than the enforcement/adversarial setting normally associated with Superfund, while at the same time achieving the objectives of CERCLA, NRDA, and ESA. Potential benefits to local communities and to the environment from WRDA initiatives include more extensive actions that are implemented faster than is possible from the established regulatory enforcement path.

[4] Once an urban waterway is designated as a Superfund site, the Corps may be reluctant to continue active maintenance dredging until the liability and contamination issues are fully resolved.

WRDA PROJECT DEVELOPMENT[5]

This section provides brief background information on the fundamentals of the Corps' WRDA-based project development process.

Corps/Sponsor Partnerships

A key aspect of all Corps civil works projects involves the relationships and interactions between the Corps and non-federal public sponsors of civil works projects.

The Corps of Engineers. The Corps is the Federal government's largest water resources development and management agency, which began its civil works program in 1824. At that time, Congress appropriated funds for improving navigation. Since then the mission of the Corps has expanded to representing Federal interests in:

- Commercial navigation
- Flood damage reduction
- Ecosystem restoration
- Hurricane and Storm Damage Reduction
- Water Supply
- Hydroelectric Power
- Outdoor Recreation
- Water Quality

It is the civil works mission of the Corps that provides local communities with opportunities to meet water resource needs where there is both a local and national interest. Corps water resources activities are initiated by local sponsors, authorized by Congress, funded by Federal and non-Federal sponsors, and constructed by private contractors supervised by the Corps under the civil works program.

Sponsors. Sponsors are state, tribal, county or local governments or agencies that are interested in joining with the Corps to participate in civil works projects. The sponsor is involved throughout all phases of the project including attendance at meetings, preparing and reviewing project documents, acquiring real property, relocating utilities and public facilities, and making joint project decisions with the Corps.

Partnership. Civil works projects under WRDA are undertaken by partnerships between the Corps and non-federal public sponsoring organizations. Sponsors share in the financial costs of studies and projects and undertake certain responsibilities with respect to budget, scope, quality, and schedule. Projects typically are managed by Corps project managers who coordinate with the sponsor throughout the study, design and construction phases of the project.

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[5] Much of the information in this section is extracted from a recent Corps report titled Project Partnership Kit. (IWR Report No 96-R-10, Revised January 2001).

Development of Civil Works Projects Under WRDA

Civil works projects normally evolve from ideas about how to solve a problem with functioning solutions that reflect both the Nation's and the sponsor's interests. A project typically passes through five basic stages:

- Reconnaissance study
- Feasibility investigation
- Preconstruction engineering and design
- Construction
- Operation, maintenance, repair, replacement and rehabilitation

The development of civil works projects requires significant partnering between the Corps and the sponsor as well as with other federal, tribal, state and governmental agencies to identify, prioritize, and attain environmental and economic goals.

WRDA projects originate with a request from a local community for assistance. Then community representatives meet with the local Corps district staff to discuss available forms of help. The next step is for a member of Congress to request authority for the Corps to study the problem. The final step in project origination occurs when Federal funds to conduct the reconnaissance study are included in the appropriate appropriations act.

Reconnaissance Phase. Reconnaissance reports, called "905(b) analyses," are based on the authority provided in Section 905(b) of the Water Resources Development Act of 1986. The primary purpose of the reconnaissance phase is to determine if there is a Federal interest in proceeding with the second, or feasibility phase. The local sponsor can provide information and express opinions needed to define the problem, and identify and evaluate solutions. The reconnaissance phase is funded at 100 percent Federal cost.

The reconnaissance phase includes the identification of local interest and support from non-Federal entities in the cost sharing of the identified potential solutions. This interest is documented in a letter of intent (LOI) from the sponsor.

The final steps of the reconnaissance phase are the preparation of a Feasibility Cost Sharing Agreement (FCSA) and a Project Management Plan (PMP), which describe the responsibilities, guidelines, tasks, cost estimate, and schedule for the feasibility study.[6]

Feasibility Phase. The purpose of this phase is to fully define problems and opportunities, describe and evaluate alternative plans and fully describe a recommended project. The feasibility phase is cost shared equally between the Corps and the local

[6] As will be discussed later, significant involvement of all stakeholders is recommended at this stage to assure the potential solutions evaluated in the feasibility study have the support of the stakeholders and are integrated into the Superfund RI/FS process.

sponsor. As a result of WRDA 2000, the sponsor may now provide its share with in-kind services instead of cash.

Section 203 of WRDA 86 allows local sponsors to conduct feasibility studies themselves and submit the report to the Corps for approval. Since the costs of feasibility studies are split 50/50, the law includes a provision to pay the local sponsor the government's 50 percent share by issuing a credit against the cost of final design and construction. One advantage of the Section 203 approach is that it allows the local sponsor to accelerate the schedule for the project. A disadvantage is that the local sponsor has to temporarily finance the government's share of the feasibility study.

Section 203 of the 1986 WRDA statute is focused principally on navigation dredging. Consequently there is some uncertainly regarding the applicability of Section 203 to single-purpose environmental restoration projects. Further work with Corps policy personnel would be required to determine the degree to which the Section 203 authority can be applied to environmental restoration projects.

A wide range of alternatives is investigated in the feasibility phase. In the case of ecosystem restoration projects, the alternative that reasonably maximizes ecosystem restoration benefits compared to project costs, and is consistent with the National Ecosystem Restoration objective, is sought. The major steps followed in formulating projects are:

- Specification of problems and opportunities that are relevant to the planning setting, and are associated with the Federal objective and specific state, tribe, and local concerns
- Inventory, forecast, and analysis of conditions in the area that are relevant to the identified problems and opportunities
- Formulation of alternative plans that would resolve the identified problems and realize the identified opportunities
- Evaluation of the economic, environmental, and other effects, both beneficial and adverse, of each alternative plan
- Comparison of alternative plans and their effects
- Selection of a recommended plan

The major documents prepared during this phase are the feasibility report and the Environmental Impact Statement (EIS). These reports are initially prepared as draft documents and are sent out for public review. Once finalized, the Corps District Commander signs the feasibility report and the Division Engineer issues a public notice. Once the final EIS is filed, the Chief of Engineers Report is signed and is submitted along with the final feasibility report to the Assistant Secretary of the Army for Civil Works [ASA(CW)]. The ASA(CW) then submits the report documentation to the Office of Management and Budget (OMB). OMB reviews the report to make sure that it is consistent with Administration policies and priorities, and provides clearance to release the report to Congress. The ASA(CW) then submits the report to Congress for authorization to construct the recommended project. Normally it takes from two to three years to produce a feasibility report, followed by review and approval of the report at the Washington level.

Preconstruction Engineering and Design Phase. The purpose of the Preconstruction Engineering and Design (PED) phase is to complete any additional planning studies and all of the detailed technical studies and design needed to begin construction of the project. The PED phase is cost shared on the same basis as the cost shares for construction. The local sponsor typically pays 25 percent during the PED, with any difference paid at the start of construction. The PED phase usually takes about two years to complete and usually overlaps with the end of the feasibility phase.

The major documents associated with the PED phase are the Design Agreement (DA), the Design Documentation Report (DRR), Plans and Specifications (P&S) and the draft Project Cooperation Agreement (PCA) that describes sponsor and Corps responsibilities for project construction, operation and maintenance.

Construction Phase. The construction phase begins after Congress appropriates Construction General (CG) funds for the project and the Project Cooperation Agreement (PCA) is negotiated and jointly signed by the sponsor and the Corps. The PCA sets forth the partner's responsibilities and commitments for what will be built, cost sharing, real estate acquisitions and relocations, and other factors. Real estate acquisition is primarily the responsibility of the local sponsor.

Construction can take months to years to complete depending upon the complexity of the project. Construction is considered to be complete when the project has been inspected and accepted from the contractor and it is turned over to the local sponsor.

The cost to build a project is shared in accordance with the requirements of various Federal laws. For Ecosystem Restoration the local sponsor share is 35%. For environmental dredging projects (Section 312(b)) the local share is 35% for dredging. Prior to 1999, the disposal site cost for environmental dredging was the total responsibility of the local sponsor. But with Section 224 of WRDA 99, the disposal site costs were changed from a 100 percent non-Federal responsibility to a shared responsibility as a cost of construction. The local share for navigation related disposal sites currently is 20% if the navigation depth is less than 20 feet, 35% if the depth is between 20 and 45 feet, and 60% if the depth is greater than 45 feet.

Operation and Maintenance Phase. During this phase, the community realizes the full benefits of the project and the responsibility passes from the Corps to the local sponsor. The local sponsor is usually responsible for operation, maintenance, repair, rehabilitation and replacement (OMRR&R) of the project.

EVALUATIONS OF ENVIRONMENTAL RESTORATION PROJECTS

Unlike traditional civil works projects (such as navigation and flood control), many of the outputs of environmental restoration projects cannot be measured in monetary terms. The challenge becomes how to select projects when they cannot all be compared in like monetary terms.

In 1993, the Corps initiated the Evaluation of Environmental Investments Research Program (EEIRP) to provide an evaluation framework to determine the most effective and efficient alternative for particular locations. The EEIRP, completed in 1996, generated 25 reports and manuals for the evaluation of environmental investments.

The EEIRP studies contributed to revisions of the Corps Planning Guidance Notebook (ER 1105-2-100, April 22, 2000). That document states the following planning principals for ecosystem restoration (Section 2-2. b.)

> b. Ecosystem Restoration. Ecosystem restoration is one of the primary missions of the Corps of Engineers Civil Works program. The Corps objective in ecosystem restoration planning is to contribute to national ecosystem restoration (NER). Contributions to national ecosystem restoration (NER outputs) are increases in the net quantity and/or quality of desired ecosystem resources. Measurement of NER is based on changes in ecological resource quality as a function of improvement in habitat quality and/or quantity and expressed quantitatively in physical units or indexes (but not monetary units). These net changes are measured in the planning area and in the rest of the Nation. Single purpose ecosystem restoration plans shall be formulated and evaluated in terms of their net contributions to increased ecosystem value (NER outputs), expressed in non-monetary units.

Section 3-5 of the Planning Guidance Notebook provides an evaluation framework for ecosystem restoration that includes the following components (Section 3-5.c).

(1) Outputs. Ecosystem restoration outputs must be clearly identified and quantified in appropriate units. The use of units that measure an increase in ecosystem value and productivity are preferred. Some examples of possible metrics include habitat units, acres of increased spawning habitat for anadromous fish, stream miles restored to provide fish habitat, increases in number of breeding birds, increases in target species and diversity indices.

(2) Cost Effectiveness – Incremental Cost Analyses. Cost-effectiveness analysis shall be used to identify the least cost solution for each level of environmental output being considered. Incremental cost analysis compares the additional costs to the additional outputs for an alternative. It is a tool that can assist in the plan formulation and evaluation process, rather than a dictum that drives the process. These analyses help to identify the most cost effective plan within the identified constraints.

(3) Significance of Outputs. The significance of the outputs is a critical factor in determining if the monetary and/or non-monetary benefits of the proposed project justify monetary and/or non-monetary costs.

Defining the non-monetary significance of outputs plays an important role in ecosystem restoration. Statements of significance provide qualitative information to help decision makers evaluate whether the value of the resources of any given restoration alternative are worth the costs incurred to produce them. The Planning Guidance Notebook recognizes significance in terms of institutional, public, and/or technical recognition (Appendix E, Section E-37).

(1) Institutional Recognition. Significance based on institutional recognition means that the importance of an environmental resource is acknowledged in the laws, adopted plans, and other policy statements of public agencies, tribes, or private groups.
(2) Public Recognition. Public recognition means that some segment of the general public recognizes the importance of an environmental resource, as evidenced by people engaged in activities that reflect an interest or concern for that resource.
(3) Technical Recognition. Technical recognition means that the resource qualifies as significant based on its technical merits, which are based on scientific knowledge or judgment of critical resource characteristics.

The evaluation of ecosystem restoration projects happens within the context of the Corps planning process, which is grounded in the *Economic and Environmental Principals and Guidelines for Water and Related Land Resources Implementation Studies* (P&G), promulgated in 1983, which were designed to guide the formulation and evaluation of reasonable plans responsive to national, state, and local concerns. Four evaluation criteria specified in the P&G in the screening of alternative plans are acceptability, completeness, effectiveness, and efficiency. Projects must meet minimum subjective standards of these criteria in order to qualify for further consideration. These criteria, as applied to ecosystem restoration, are described in Appendix E, Section E-38 of the Planning Guidance Notebook.

(1) Acceptability. An ecosystem restoration plan should be acceptable to State and Federal resource agencies, and local government. There should be evidence of broad based public consensus and support for the plan. A recommended plan must be acceptable to the non-Federal cost-sharing partner. However, this does not mean that the recommended plan must be the locally preferred plan.
(2) Completeness. A plan must provide and account for all necessary investment or other actions needed to ensure the realization of the planned restoration outputs. This may require relating the plan to other types of public or private plans if these plans are crucial to the outcome of the restoration objective.

Real estate, O&M, monitoring, and sponsorship factors must be considered. Where there is uncertainty concerning the functioning of certain restoration features and an adaptive management plan has been proposed it must be accounted for in the plan.

(3) Efficiency. An ecosystem restoration plan must represent a cost effective means of addressing the restoration problem or opportunity. It must be determined that the plan's restoration outputs cannot be produced more effectively by another agency or institution.

(4) Effectiveness. An ecosystem restoration plan must make a significant contribution to addressing the specified restoration problems or opportunities (i.e., restore important ecosystem structure for function to some meaningful degree).

Selecting the NER plan requires careful consideration of the plan that meets planning objectives and constraints and reasonably maximizes environmental benefits while passing tests of cost effectiveness and incremental cost analyses, significance of outputs, acceptability, completeness, efficiency, and effectiveness.

STAKEHOLDER INVOLVEMENT AND COLLABORATIVE PLANNING

Historically, a common approach to project planning in the public sector was the "decide-announce-defend" model. Under this model, the Corps completed the required technical studies and evaluations that led to selection of a recommended project, announced the project to the public, and then defended the position. However, the recent environmental investment studies under EEIRP[7] show that it is not reasonable to expect the Corps to place a value on environmental outputs without first receiving considerable input from stakeholders.

Those studies also argue for a new model of "collaborative planning" for identifying, evaluating, and implementing environmental restoration projects. What constitutes a good environmental restoration project (and which outputs should be used to describe it) depends heavily on what is acceptable to the stakeholders, and not just how it measures up against a technical standard.

Specific suggestions for initiating collaborative planning for an urban waterway, through initial stakeholder outreach and through scoping workshops, are described below.

Stakeholder Outreach

The WRDA process is a voluntary activity that provides local communities with opportunities to meet water resources needs through projects that are jointly funded by the local sponsor and the federal government through Congressional appropriations.

[7] Environmental Valuation: The Role of Stakeholder Communication and Collaborative Planning. IWR Report 96-R-17. June 1996.

Early stakeholder outreach is an important component of WRDA-based projects in order to assure that the action has the support of the stakeholders and meets the needs of the local community. Without the support of the local community and the other stakeholders, the chances of Congressional funding for a project can be diminished significantly.

A WRDA action at an urban waterway has the potential to provide major economic and ecological resource benefits to the community. Consequently the list of stakeholders for an action in an urban waterway is large. The primary categories of stakeholders at urban waterway Superfund sites include the following:

- PRPs
- Local, State, Federal Elected Officials
- Regional Governmental Agencies (resource and regulatory)
- Headquarters of Governmental Agencies (resource and regulatory)
- Congressional Committees ((resource, regulatory, appropriations)
- General Public
- Environmental and Community Organizations
- Local Media

Table 1 includes an expanded list of urban-waterway stakeholders to consider in outreach activities.

The process of one-on-one outreach helps to initially assess stakeholder interests and opinions on the topic of ecosystem restoration for urban waterways. These could include what they would like to see happen, what the actions should achieve, and how would they measure success of ecosystem restoration. Dialogue should help identify common perceived issues, barriers to implementation, and supporters for each potential action.

Based on past experience, initial outreach efforts may take one to two months to complete, and will overlap with scoping workshops. Outreach efforts have the potential to play an equal, if not greater role, than the technical studies in determining the path and the success of WRDA initiatives. Because the integration of WRDA and CERCLA processes would likely involve the development of new EPA and Corps policies, or at a minimum review of existing policies, the outreach must also occur in Washington DC.

Scoping Workshops

One of the final tasks for the reconnaissance phase of a WRDA project is the development of the Project Management Plan, which describes the responsibilities, guidelines, tasks, cost estimate, and schedule for the feasibility study. Because of the extensive nature of potential stakeholder lists in urban waterway settings, a series of facilitated workshops are recommended to draw out the full range of opinions and considerations for such actions. Although considerable effort is required to organized and implement the workshops at the start of projects, potential dividends in identifying potential obstacles, as well as developing early buy-in and public support, are significant.

The purpose of the workshops is to develop the first steps of formulating a WRDA project. Those steps are:

a) Identify the problems and opportunities that are relevant to ecosystem restoration of the urban waterway, and that are associated with the Corps Federal NER objective and specific federal, state, tribe, and public concerns. These generally will include the Superfund, NRDA, and ESA issues for the urban waterway.
b) Inventory, forecast, and analyze conditions in the area that are relevant to the identified problems and opportunities, including those associated with Superfund and NRD.
c) Formulate alternative concepts that could resolve the identified problems and realize the identified opportunities.
d) Based on the existing knowledge of the workshop participants, weigh the known economic, environmental, and other effects, both beneficial and adverse, of each alternative concept.
e) Develop a consensus statement of preferred actions for ecosystem restoration for the urban waterway to be considered in the feasibility phase of the project.

Those steps can be achieved through a series of four facilitated workshops as follows:

Workshop #1: Education. Gather all of the stakeholders together for a half-day to daylong meeting to provide 1.) education on the opportunities for the urban waterway under the various WRDA authorities and initiatives; 2.) education on WRDA project formulation and evaluation; and 3.) discussion on the integration of WRDA with the requirements of CERCLA, NRDA, and ESA at the site.

Workshop #2: Assessment. Gather like-minded stakeholders together in separated sessions to ensure that all issues are openly identified and discussed. Each group would meet for one to two hour sessions to assess stakeholder opinions on the topic of ecosystem restoration for the urban waterway, to identify what would they like to see happen, what achievement the action should target, and how would they measure success of ecosystem restoration. All or parts of steps (a)-(c) of the project formulation process, mentioned above, should be addressed in these workshops. After conclusion of the meetings, facilitators should organize comments by topic, general themes, as well as divergent views. Common goals would be identified as well as the identification of possible actions to consider. Each participant should be provided with the summary in preparation for the next workshop session.

Workshop #3 Consideration of Alternatives: This workshop is intended to address primarily the considerations contained in step (d) of the project formulation process. Once again, stakeholders would be gathered in one to two hour sessions to ensure that all issues are openly identified and discussed. Workshop #3 is where, based on the existing knowledge of the workshop

participants, the known economic, environmental, and other effects, both beneficial and adverse, are weighed in reference to the alternative concepts generated in the workshop.

Workshop # 4 Consensus Statement: This workshop is intended primarily to address the considerations of step (e) of the project formulation process. In the workshop, all of the stakeholders would conduct a half-day to daylong meeting to develop a consensus statement of preferred actions to be considered in the feasibility phase of the project.

Based on past experiences, this four-workshop process can be completed within a four to six-month time frame. Once completed, the consensus statement resulting from the workshops would become the basis for the scoping of the feasibility study. The WRDA scoping effort would be coordinated with the development of the work plan associated with the Superfund RI/FS to minimize redundancy and provide dual benefit wherever possible.

WRDA EVALUATION ROAD MAP AT SUPERFUND SITES

Administrative Order on Consent for RI/FS

Normally one of the first steps at a Superfund site is for the PRPs to negotiate an administrative order on consent (AOC) with EPA for completion of the RI/FS under Superfund. If an AOC is signed prior to CERCLA/WRDA integration, both the Superfund and WRDA processes may have to run parallel for some time, possibly to the point of the consent decree for remedial design (RD) and remedial action (RA), before making a shift to WRDA.

A better approach would involve inclusion of language in the RI/FS AOC indicating the PRP's interest in applying WRDA authorities to the cleanup and restoration of the site. The language should be crafted in such a way as to provide a mechanism to shift the work from an EPA Superfund lead to a Corps WRDA lead, with EPA's approval, at an appropriate point in the future.

WRDA Road Map

Up-front activities are recommended at newly initiated urban waterway cleanup sites to evaluate WRDA opportunities. WRDA projects typically originate with a request from a local community for assistance. The next step is for a member of Congress to request authority for the Corps to study the problem. The final step in the project initiation process occurs when Federal funds to conduct the reconnaissance study are included in an Energy and Water Development appropriations act.

It is important to engage the resources of PRPs, the Corps, EPA and the Trustees during the WRDA reconnaissance phase in order for the parties to evaluate and take

advantage of the full potential that may be available through WRDA for urban waterway projects.

If the reconnaissance study establishes a Federal interest in ecosystem restoration, the next tasks include the development of a Project Management Plan (PMP) and the Feasibility Cost Sharing Agreement (FCSA). It is through the development of these documents that the scope, viability, costs, benefits and uncertainties of WRDA projects will be developed and understood. At the end of this stage, the parties will have the information needed to make decisions to continue with WRDA into the feasibility stage, to stay the course of a Superfund project, or to pursue a hybrid of both authorities (see Table 1).

The primary tasks that are suggested for preparation of the PMP and FCSA, after the finding of a Federal interest, are discussed below.

Stakeholder Outreach

The following tasks are instrumental to insuring and effective and successful stakeholder outreach process:

- Define the various WRDA authorities that would be viable for ecosystem restoration of the urban waterway and how to best include them into the WRDA feasibility study
- Weigh stakeholder support for the urban waterway ecosystem restoration, and clarify the definition of viable components to a WRDA project
- Identify the education components of scoping Workshop #1

PRP-Agency Planning

It is important for discussions among the PRPs, EPA, the Corps and the Trustees to clearly establish a plan for completing the WRDA Project Management Plan for the WRDA feasibility study, including the following activities:

- Initiation of dual tracks (Superfund and WRDA), with the intent of shifting to WRDA no later than the CERCLA consent decree phase
- Inclusion of scoping workshops to involve stakeholders in the identification of goals, objectives, constraints, and opportunities for ecosystem restoration in the urban waterway, as well as the development of a consensus project
- Identification of tasks that will be completed under the WRDA feasibility study and under the CERCLA RI/FS
- Integration and coordination of the WRDA Project Management Plan with the Superfund RI/FS work plan
- Identification of a project that might satisfy both CERCLA and NRD objectives for ecosystem restoration through the WRDA project process
- Negotiation of a consent decree where the PRPs, by providing the local share funding of a WRDA project of appropriate magnitude and scope, also satisfy their CERCLA and NRD responsibilities

Workshops

As discussed above, implementation of a series of facilitated workshops may be instrumental in developing the focus of the WRDA feasibility study. Recommended workshops include the following:

- Workshop #1: Education
- Workshop #2: Assessment
- Workshop #3: Alternatives
- Workshop #4: Consensus Statement

PMP/FCSA

Completion of the draft Project Management Plan and draft Feasibility Cost Sharing Agreement with the Corps is another key step.

Evaluation and Decision

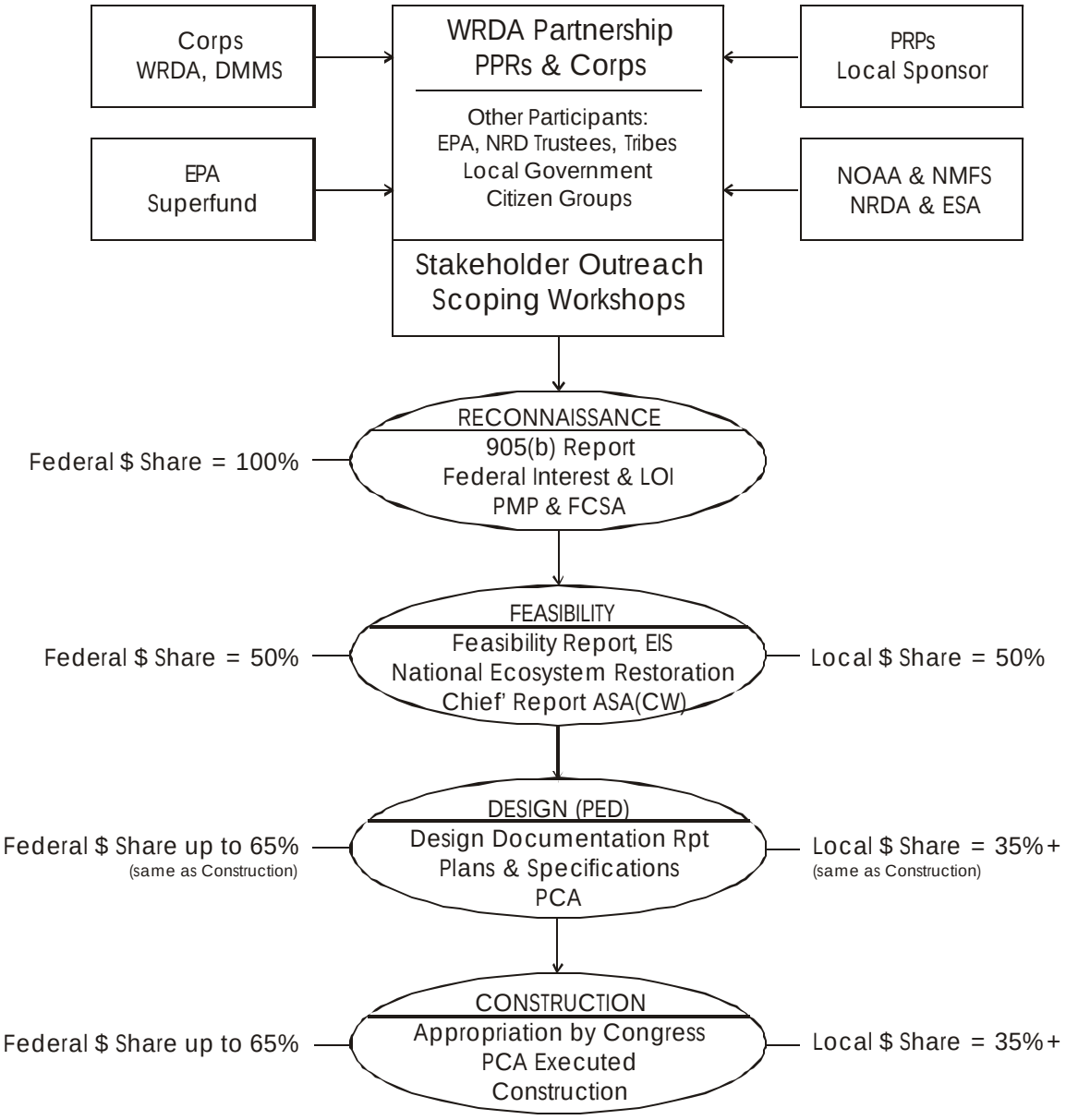
As all of the above activities are completed, the viability, cost, benefits, liabilities, obstacles, and uncertainties of a WRDA-based initiative for urban waterways will become clear. At that point in time the stakeholders should have all information needed to decide to either continue down the WRDA path by signing the PMP and the FCSA, to stay with the CERCLA path, or to develop integrate the two processes in a hybrid approach.

CONCLUSION

If approached correctly, there is considerable potential to implement a WRDA project in a way that cleans up and restores an urban waterway while at the same time resolving the CERCLA liability for PRPs. WRDA projects should provide remediation of sediments to remove threats to human health and the environment, and also provide for significant habitat and ecosystem restoration benefits for urban waterways.

While this approach described in this paper has yet to be fully applied under WRDA, the disappointing track record of completing cleanup and restoration of urban waterways under CERCLA provides a strong incentive to undertake this new paradigm.

Integration of WRDA Restoration And CERCLA Remedial Processes at Urban Waterway Superfund Sites



Dalton, Olmsted & Fuglevand, Inc,

Figure 1
May, 2001

Table 1. WRDA Concept for Superfund Urban Waterway Sites

1. Concept Refinement

- Concept Description
- WRDA Evaluation Plan

2. Stakeholder Outreach

- PRP Member Companies
- Elected Officials/Staff
  - Mayor and City Council members
  - Governor
  - State Legislators
  - Congressional Delegation
- Agencies, Region
  - Corps
  - EPA - Superfund
  - State Environmental Agency
  - Tribes
  - NRD Trustees (State, Federal, Tribes)
  - NMFS ESA
- Agencies, Headquarters
  - Corps (Civil Works)
  - EPA (Superfund)
  - Interior (natural resource damages, endangered species)
  - Commerce (natural resource damage)
  - Office of Management & Budget
- Congressional Committees
  - House Transportation and Infrastructure (Water Resources and Environment)
  - House Energy & Commerce (Environment and Haz. Materials)
  - House Appropriations (Energy & Water, EPA, Interior)
  - Senate Environment and Public Works (Transportation & Infrastructure, EPA)
  - Senate Appropriations (Energy & Water, EPA, Interior)
- Public. Environmental and Community Organizations
- Media
  - Editorial Board
  - Press Release

3. WRDA Scoping Workshops

- Workshop #1 (afternoon)
  - Combined meeting with all stakeholders
  - WRDA Education
- Workshop #2 (one day by 2-hour blocks)
  - Separate 1.5-hour meeting for associated stakeholders
  - Stakeholder goals, objectives, constraints, opportunities
  - Organize all comments by topic, general themes, divergent views
  - Identify common goals
  - Identification of possible actions
- Workshop #3 (one day by 2-hour blocks)
  - Separate 1.5-hour meeting for associated stakeholders
  - Presentation of menu of possible actions identified in Workshop 2
  - Solicit support and barriers to various alternatives
  - Identify a series of composite alternatives for further consideration

- Workshop #4
  - Combined meeting with all stakeholders
  - Identify consensus project (and primary alternatives?)

4. Reconnaissance Phase

- 905(b) Reconnaissance Report (December 2000)
- Letter of Interest (LOI) signed by local sponsor (local government)
- Project Management Plan (PMP)
  - Based on consensus project from scoping workshops
  - Responsibilities of Corps and Local Sponsor
  - Feasibility Study tasks, costs, schedule
  - Coordinate with EPA Superfund RI/FS Work Plan
- Feasibility Cost Sharing Agreement (FCSA)

5. Feasibility Study

- Formulating a Project
  - Specify problems and opportunities
  - Inventory, forecast, and analyze conditions
  - Formulate alternative plans to resolve problems and realize opportunities
  - Evaluate economic, environmental and other effects for each alternative
  - Compare alternative plans (National Ecosystem Restoration, NER)
  - Select recommended plan
- Feasibility Report/EIS
  - Draft feasibility report and EIS
  - Public review of draft feasibility report and NEPA EIS
  - District Commander signs final Feasibility Report
  - Division Engineer's Public Notice
  - Final NEPA
- Management Plan
- Chief of Engineers Report
  - Report sent to Assistant Secretary of the Army for Civil Works [ASA(CW)]
  - ASA(CW) transmits report to Office of Management and Budget (OMB)
  - OMB Clearance is provided
  - ASW(CW) sends report to Congress

6. Preconstruction Engineering and Design (PED)

- Design Agreement (DA)
- Design Documentation Report (DDR)
- Plans and Specifications (P&S)
- Draft Project Cooperation Agreement (PCA)

7. Construction

- Congress appropriates Construction General (CG) funds
- PCA finalized and signed
- Construction of project

Table 2. Comparison of CERCLA and WRDA Processes

Activity	CERCLA	WRDA
Initiation	Discovery of possible release of hazardous substance	Local request for assistance
Preliminary Study	Preliminary Assessment (PA) / Site Inspection (SI) by EPA Leads to NPL Site Listing	Reconnaissance, 905b analysis by Corps Leads to Federal interest finding.
Criteria	Protection of human health and the environment	National Ecosystem Restoration (NER)
Investigation Agreement	Administrative Order on Consent (AOC) & Statement of Work (SOW) between EPA and PRPs	Project Management Plan (PMP) & Feasibility Cost Sharing Agreement (FCSA) between Corps and local sponsor
Investigation	Remedial Investigation (RI) Feasibility Study (FS) Risk Assessment Record of Decision	Feasibility Study EIS Chief of Engineers Report (submitted by ASA(CW) to Congress)
Design Agreement	Consent Decree, committing the PRPs to complete the remedial design (RD) and remedial action (RA) and long-term monitoring	Design Agreement (DA)
Design	Remedial Design (RD)	Preconstruction Engineering Design (PED)
Construction Agreement	See Consent Decree under Design Agreement	Project Cooperation Agreement (PCA) that describes sponsor and Corps responsibilities for construction, operation, and maintenance.
Construction	Remedial Action (RA)	Construction, after Congress appropriates General Construction (GC) funds and the PCA is signed, committing the local sponsor to funding the defined share of construction
Operation and Maintenance	PRPs are responsible for long-term operation and maintenance (O&M)	Local Sponsor is responsible for operation, maintenance, repair, rehabilitation, and replacement (OMRR&R)
Site Deletions	Removal of site from NPL	